REMARKS

Applicant has amended claims 47, 51, 61, and 64. Applicant has also cancelled claims 67 and 69. Claims 47-66 and 68 are currently pending in this application.

In the Office Action, the Examiner rejected claims 47-69 under 35 U.S.C. Section 103(a) as being obvious over Zhang (U.S. Patent No. 5,881,130) in view of Liu (U.S. Patent No. 6,266,395) further in view of Galli (U.S. Patent No. 6,538,451). Although the claims have been amended, Applicant respectfully traverses the rejection to the extent that the rejections apply to the amended claims.

Applicant amended claims 47, 51 and 61 to include the feature of **measuring wideband noise at the customer end** of the wire communication line to determine the signal to noise ratio based on the transfer function and the **measured noise**. This important feature is not disclosed by the Galli reference, which does not teach measuring noise but only teaches estimating noise as it is done in prior art (Galli col. 12 lines 3-21). Moreover, in Galli (col. 11 line 45 - col. 12 line 21), estimating noise is done at the central office, which is the opposite end from the customer end. Also, from the central office end, it is impossible to measure the noise. That is the reason why Galli can only estimate the noise. None of the cited references, either alone or in combination, teach or suggest measuring noise

at the customer end and using the measured noise to qualify the communication line for xDSL use as recited in claims 47-63. Using estimated noise makes Galli's calculation of signal to noise ratio inherently inaccurate and, therefore, unreliable.

Dependent claims 48-50, 52-60 and 62-63 are also considered to be patentable by virtue of their dependency from respective independent claims 47, 51 and 61.

Applicant has incorporated claim 69 into claim 64 to include the feature of analyzing the obtained return waveform by comparing it against a library of known signal losses. In other words, the transfer function of the line being tested is obtained from a look up table that contains a library of signal strengths or losses for a group of known wire plant maps. This important feature is not disclosed by the Galli reference. In the Office Action (bottom of p.6 to p.7), the Examiner appears to assert that Liu's subscriber loop information derived from a subscriber database is equivalent to the "library of transfer functions" as recited in claim 64. Applicant respectfully disagrees. The library of the transfer functions relates to signal loss while the subscriber loop information derived from a database in Liu refers to physical characteristic of the line. Liu, therefore, does not teach using a known library of transfer functions. Quite to the contrary, in col. 8 line 6 - col. 10 line 49, Liu teaches using the **database of resistance, inductance, conductance and capacitance values** of the physical cable. Liu teaches

calculating the signal to noise ratio by using these database values for the appropriate wire gauge and temperature, which method is different from the claim language of "comparing the return waveform against a library of known transfer functions" recited in the present invention.

Dependent claims 65-66 and 68 are considered to be patentable by virtue of their dependency from independent claim 64.

Regarding the Examiner's rejection of claims 47-69 in view of Galli, Applicant respectfully submits that Galli actually discourages using a TDR. Galli's detailed description describes the width of the probing signal (col. 12 line 22-25) without making any references to TDR in col. 11 line 8 – col. 19 line 36. Galli does make one mention of TDRs in columns 6-7, but only as relevant to his discussion of half-sine pulses versus the square pulses as the choice for the subscriber loop probing signal.

In fact, Galli **teaches away from using a TDR** to measure signal strength or loss at a single end. Galli warns: "TDR methods (or, in general, single ended measurements that rely on echo pulse signatures) are inaccurate and provide ambiguous results." (col. 3 lines 38-40); "TDR methods can produce ambiguous results." (col. 3 lines 66-67); "Spurious echoes enhance the ambiguity inherent in TDR measurements." (col. 4 lines 14-15). Galli's primary testing method is the Mechanized Loop Testing (MLT) system using a test bus and an automated test

head (see col. 2 line 62 – col. 3 line 9) or a broadband test head (col. 5 line 5; col. 13 lines 2-4). Therefore, the use of TDR in the present invention is a novel and previously discouraged approach.

Based upon the above amendments and remarks, applicants respectfully request reconsideration of this application and its early allowance. Should the Examiner feel that a telephone conference with Applicant's attorney would expedite prosecution of this application, the Examiner is urged to contact him at the number indicated below.

Respectfully submitted,

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